NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL UNIT

SOIL AND DOCK IECEND TEDMS SYMPOLS

	SUIL AND RUCK LEGEND, TE	RMS, SYMBOLS, AND ABBREVIATIONS	
SDIL DESCRIPTION	GRADATION	RDCK DESCRIPTION	TERMS AND DEFINITIONS
SDIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED OR VEATHERED EARTH MATERIALS WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS LESS THAN	<u>VELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO CDARSE <u>UNIFORM</u> - INDICATES THAT SDIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO PODRLY GRADED)	HARD ROCK IS NON-CDASTAL PLAIN MATERIAL THAT WHEN TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SDILS WHICH HAVE BEEN TRANSPORTED BY WATER.
100 BLDVS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SDIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM AND BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE:	GAP-GRADED- INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO DR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO DR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE	ADUIFER - A VATER BEARING FORMATION OR STRATA. ARENACEDUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTD CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:	ANGULARITY DF GRAINS THE ANGULARITY DR ROUNDNESS DF SDIL GRAINS ARE DESIGNATED BY THE TERMS; ANGULAR.	DF WEATHERED RDCK. RDCK MATERIALS ARE TYPICALLY DIVIDED AS FDLDWS:	ARGILLACEDUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS,
VERY STIFF, CRAY SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	SUBANGULAR, SUBROUNDED, DR ROUNDED.	WEATHERED ROCK (VR) PER FOOT.	OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.
SDIL LEGEND AND AASHTD CLASSIFICATION	MINERALOGICAL COMPOSITION	CONSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IS IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS CLASS. (≤35% PASSING #200) (>35% PASSING #200) □RGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KADLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.	RDCK (CR) WOULD TIELD STY REFUSAL IT TESTED. RUCK TYPE INCLUDES GRANITE,	GROUND SURFACE. CALCAREDUS (CALC.) - SDILS WHICH CONTAIN APPRECIABLE AMDUNTS OF CALCIUM CARBONATE.
GRDUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-a A-1-a A-2-4A-2-5A-2-6A-2-7 A-2-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELD SPT REFUSAL IF TESTED. ROCK TYP	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SDIL DEPOSITED BY GRAVITY DN SLOPE OR AT BOTTOM
88888888888	SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 30 MODERATELY COMPRESSIBLE LIQUID LIMIT 31-50	CDASTAL PLAIN CDASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	ur score.
X PASZING	HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50 PERCENTAGE OF MATERIAL	SEDIMENTARY RDCK SPT REFUSAL. RDCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED (CP) SHELL BEDS, ETC.	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
# 10 50 MX GRANULAR SILT- MUCK,	TREAMIC MATERIAL GRANULAR SILT- CLAY	WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
# 200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN	TRACE DF DRGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM DR ANY PLANAR FEATURE IS INCLINED FROM THE
LIQUID LIMIT 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN SDILS WITH PLASTIC INDEX 6 MX N.P. 10 MX 10 MX 11 MN 11 MN 11 MN 1 MN 1 MN 1 MN 1 M	LITTLE DRGANIC MATTER	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN.	HDRIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX MODERATE DESANTO	HIGHLY DRGANIC >10% >20% HIGHLY 35% AND ABOVE GROUND WATER	(V. SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
USUAL TYPES STDNE FRAGS. FINE SILTY DR CLAYEY SILTY CLAYEY DRGANIC SDILS	✓ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING.	SLIGHT RDCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO RDCK UP TO (SLI.) 1 INCH. DPEN JDINTS MAY CONTAIN CLAY. IN GRANITDID RDCKS SDME DCCASIONAL FELDSPAR	FAULT - A FRACTURE OR FRACTURE ZDNE ALDING WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DINE ANDTHER PARALLEL TO THE FRACTURE.
MATTER MATERIALS SAND SAND GRAVEL AND SAND SDILS SDILS MATTER	STATIC WATER LEVEL AFTER 24 HOURS.	CRYSTALS ARE DULL AND DISCOLDRED. CRYSTALLINE ROCKS RING UNDER HAMMER BLDWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
GEN. RATING AS A EXCELLENT TO GOOD FAIR TO POOR FAIR TO POOR UNSUITABLE	PERCHED WATER, SATURATED ZONE OR WATER BEARING STRATA	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SDME SHOW CLAY. ROCK HAS	FLDAT - RDCK FRAGMENTS ON SURFACE NEAR THEIR DRIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
SUBGRADE P.I. DF A-7-5≤ Lt 30 : P.I. DF A-7≠6 Lt 30	OM- SPRING DR SEEPAGE	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	FLOOD PLAIN (F.P.) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY
CDNSISTENCY DR DENSENESS	MISCELLANEDUS SYMBOLS	MDDERATELY ALL ROCK EXCEPT QUARTZ DISCOLDRED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL SEVERE AND DISCOLDRED AND A MAJORITY SHOW KADLINIZATION. ROCK SHOWS SEVERE LDSS OF STRENGTH	THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN
PRIMARY SOIL TYPE COMPACTNESS DR CONSISTENCY RANGE OF STANDARD RANGE OF UNCONFINED PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT SPT CPT PBT DWT TEST BORING SAMPLE VITH SOIL DESCRIPTION	(MDD SEV.) AND CAN BE EXCAVATED WITH A GEDLOGIST'S PICK. RDCK GIVES 'CLUNK' SDUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL	THE FIELD.
(N-VALUE) (TUNS/FF)	VITH SDIL DESCRIPTION VST PMT DESIGNATIONS	SEVERE ALL ROCKS EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS DCCURRED.
GRANULAR LOUSE 4 TO 10	SDIL SYMBOL AUGER BORING S- BULK SAMPLE	(SEV.) REDUCED IN STRENGTH TO STRONG SDIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KADLINIZED T SDME EXTENT. SDME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL DTHER THAN TO CORE BORING SS- SPLIT SPOON SAMPLE	IF TESTED, YIELDS SPT N VALUES > 100 BPF	LENS - A BODY DF SDIL DR ROCK THAT THINS DUT IN DNE DR MORE DIRECTIONS. MOTTLED (MDI.) - IRREGULARLY MARKED WITH SPDTS DF DIFFERENT COLORS. MOTTLING IN
VERY DENSE >50	ST- SHELBY TUBE	VERY SEVERE ALL ROCK EXCEPT QUARTZ DISCOLDRED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BL (V. SEV.) THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH DNLY FRAGMENTS OF STRONG ROCK	SDILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
GENERALLY SDFT 2 TD 4 0.25 TD 0.5	MDNITDRING WELL SAMPLE	REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK VEATHERED TO A DEGREE SUCH THAT DNLY MIND VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i>	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
SILT-CLAY MEDIUM STIFF 4 TD 8 0.5 TD 1 MATERIAL STIFF 8 TD 15 1 TD 2	PIEZOMETER ALLUVIAL SDIL BOUNDARY PIEZOMETER INSTALLATION RT- RECOMPACTED	COMPLETE ROCK REDUCED TO SDIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL SDIL - SDIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
(CDHESIVE) VERY STIFF 15 TD 30 2 TD 4 HARD >30 2 TD 4	SLOPE INDICATOR TRIAXIAL SAMPLE	SCATTERED CONCENTRATIONS. DUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	RDCK QUALITY DESIGNATION (R.O.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO DR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND
TEXTURE DR GRAIN SIZE	ROCK STRUCTURES INSTALLATION CBR - CBR SAMPLE SPT N-VALUE	RDCK HARDNESS	EXPRESSED AS A PERCENTAGE.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	SDUNDING RDD REF SPT REFUSAL	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGISTS PICK.	SAPROLITE (SAP.) - RESIDUAL SDIL WHICH RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
DPENING (MM) 4.76 2.0 0.42 0.25 0.075 0.053	ABBREVIATIONS	HARD CAN BE SCRATCHED BY KNIFE DR PICK DNLY WITH DIFFICULTY. HARD HAMMER BLDWS REQUIRED	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, WHICH HAS BEEN EMPLACED PARALLEL
BDULDER	AR - AUGER REFUSAL PMT - PRESSUREMETER TEST	TO DETACH HAND SPECIMEN. MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GRODVES TO 0.25 INCHES DEEP CAN BE	TO THE BEDDING DR SCHISTOSITY OF THE INTRUDED ROCKS
GRAIN MM 305 75 2.0 0.25 0.05 0.005	BT - BORING TERMINATED SD SAND, SANDY CL CLAY SL SILT, SILTY	HARD EXCAVATED BY HARD BLOW OF A GEOLOGISTS PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
SIZE IN 12' 3'	CPT - CDNE PENETRATION TEST SLI SLIGHTLY CSE CDARSE TCR - TRICONE REFUSAL	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR B.P.F.) OF
SDIL MDISTURE - CORRELATION OF TERMS SDIL MDISTURE SCALE FIELD MDISTURE CHAPTER AND STATE OF THE PROPERTY	DMT - DILATOMETER TEST	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGISTS PICK.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH DUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS LESS THAN 0.1 FOOT PENETRATION
(ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	e - VDID RATIO F FINE V - MDISTURE CONTENT	SDFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	WITH 60 BLDWS. STRATA CORE RECOVERY (SREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE	FDSS FDSSILIFERDUS V VERY FRAC FRACTURED VST - VANE SHEAR TEST	PIECES CAN BE BROKEN BY FINGER PRESSURE.	DF STRATUM AND EXPRESSED AS A PERCENTAGE.
LL LIQUID LIMIT (SAIL) FROM BELLOV THE GROUND WATER TABLE	FRAGS FRAGMENTS MED MEDIUM	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	STRATA ROCK QUALITY DESIGNATION (S.R.O.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH DF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO DR GREATER THAN 4 INCHES DIVIDED BY THE
PANGE / SEMISDLID; REQUIRES DRYING TO	EQUIPMENT USED ON SUBJECT PROJECT	FINGERNAIL. FRACTURE SPACING BEDDING	TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. JUPSDIL (T.S.) - SURFACE SDILS USUALLY CONTAINING DRGANIC MATTER.
PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TODLS: HAMMER TYPE:	TERM SPACING TERM THICKNESS	BENCH MARK: BM #2: -L- STA. 18+77.0, 31.0' RIGHT 8" SPIKE IN
DM DPTIMUM MOISTURE - MDIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	☐ ☑ AUTDMATIC ☐ MANU	AL VERY VIDE MORE THAN 10 FEET VERY THICKLY BEDDED > 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	BASE OF DAK TREE.
SL SHRINKAGE LIMIT REQUIRES ADDITIONAL WATER TO	MDBILE B- CLAY BITS CS SIZE:	MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET	ELEVATION: 2428.94 FT.
- DRY - (D) ATTAIN OPTIMUM MOISTURE	BK-51 8' HDLLDW AUGERS —-B	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED (0.008 FEET	NDTES:
PLASTICITY	CME-45 HARD FACED FINGER BITS	INDURATION	
PLASTICITY INDEX (PI) DRY STRENGTH NDNPLASTIC 0-5 VERY LDW	TING-CARRINE INSERTS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
LDW PLASTICITY 6-15 SLIGHT	CASING W/ ADVANCER HAND TOOLS:	FRIABLE RUBBING WITH FINGER FREES NUMERDUS GRAINS; GENTLE BLDW BY HAMMER DISINTEGRATES SAMPLE.	
MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH	PORTABLE HOIST TRICONE STEEL TEETH POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
CDLDR	DTHER TRICONE TUNGCARB. HAND AUGER	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YEL-BRN, BLUE-GRAY) MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	CORE BIT SOUNDING ROD DTHER SEEM AUGUSTS CORE BIT SOUNDING ROD VANE SHEAR TEST	DIFFICULT TO BREAK WITH HAMMER.	
THE USED TO DESCRIPT DAME, STREEMED, LTC. ARE USED TO DESCRIBE APPEARANCE.	DTHER DTHER STEM AUGERS DTHER DTHER	EXTREMELY INDURATED SHARP HAMMER BLDVS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	
			DEVICED ON (15 (OO